RDMODGSM-TV

Additional Manual for SAU/SAV & STU/STU series

Manufactured by R.V.R. TELEVISION Italy

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RDMODGSM-TV - Additional Manual
Version 1.0

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1. General Description

The external telemetry accessory support connectivity to the whole range of units of RVR's **SAU/SAV** & **STU/STU** family of products. In the continuation, unless that for the different versions there are specific informations, the versions **RDMODGSM-TV** (external telemetry accessory for the **SAU/SAV** & **STU/STU** series) and its variant **RDMODGSM-TV.USA** (variant for american market) will be called simply **RDMODGSM-TV**.

This section describes the features introduced with version **RDMODGSM-TV** (accessory for external telemetry) and the necessary steps for their proper configuration.

The telemetry supports:

- Remote alarm reporting by sending SMS messages through a GSM modem or through a PSTN modem (dial-up) by sending an alarm message string to a connected PC.
- Telemetry, with all equipment parameters sent to the "TELECON" software through an RS232, GSM or PSTN connection;
- Remote controlling through an RS232, GSM or PSTN connection to the "TELECON" software or through certain predetermined SMS messages.

1.1 Remote alarm monitoring

Alarm generation parameters are listed below:

- Equipment forward power (forward power good "PgD");
- Equipment reflected power (reflected power good "PgR");
- Unbalanced power;
- Video Signal Level;
- Audio 1 Signal Level;
- Audio 2 Signal Level;
- Mains voltage state (present or missing).

Factory default settings are as follows:

ALARM	TIME	THRESHOLD
Forward Power (Fwd Pwr)	25 Sec.	Power Good (PgD)
Reflected Power (Rfl Pwr)	25 Sec.	Power Good (PgR)
Unbalanced Power	25 Sec.	
Video	25 Sec.	
Audio 1	25 Sec.	
Audio 2	25 Sec.	
Mains Power (Mains)	25 Sec.	

Table 1.1

An inhibit time (start time) after power-on is provided to ensure false alarm prevention. When this inhibit time times out, the thresholds of alarm generation parameters are checked and remote alarms are sent if needed.

Alarm generation technique is outlined in the figure below; remote alarm delay, i.e. the amount of time the system waits before issuing a remote alarm after an alarm condition occurs is indicated in table 1.1. When appropriate, a new line is added to the alarm log stored in **RDMODGSM-TV**, up to four lines maximum.

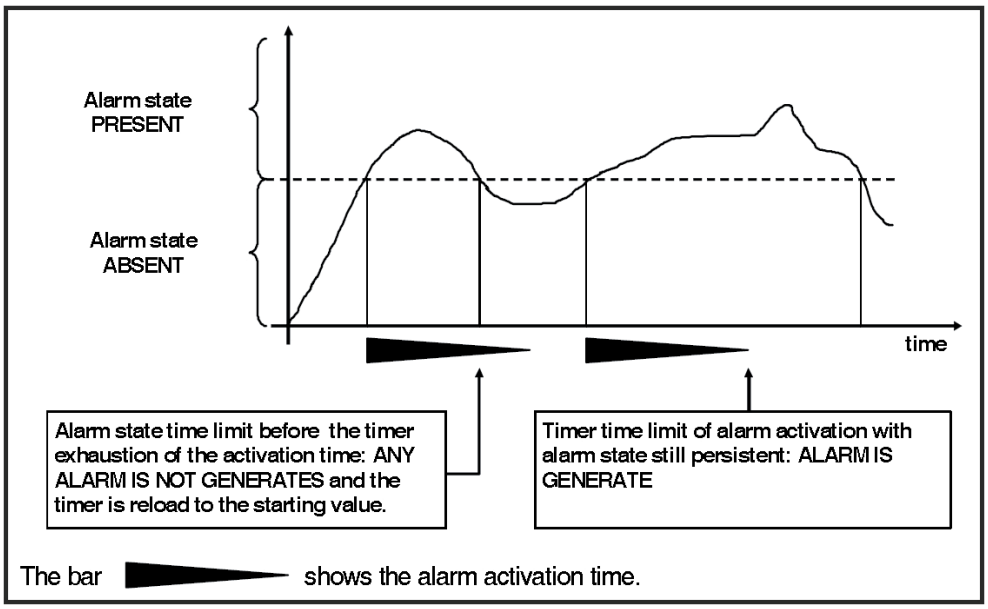

Alarm state
PRESENT
Alarm state
ABSENT
time
Alarm state time limit before the timer exhaustion of the activation time: ANY ALARM IS NOT GENERATES and the timer is reload to the starting value.
Timer time limit of alarm activation with alarm state still persistent: ALARM IS GENERATE
The bar
shows the alarm activation time.

Figure 1.1

The alarm log may be reviewed using the “TELECON” software or through SMS (see relevant section).

WARNING: The mains alarm is triggered from the battery charger board; as a result, this board is required even when no batteries are installed. In the configuration without batteries, no alarm is generated; instead, an SMS message indicating a normal condition is sent upon next start-up.

When any one of the parameters listed above changes state, a text message with the following information is sent via modem (if fitted):

- Station Name.
- Station ID.
- State of measurements.

EX1.

Station Name
ID:000
Forward Power OK
Reflected Power OK
Audio OK
Mains OK

EX2.
Station Name ID:000
Forward Power OK
Reflected Power OK
Audio OK,
EXT FWD Power OK
EXT RFL Power OK
Mains OK -

1.2 Telemetry

Equipment telemetry consists in the remote monitoring of all operating parameters and can only be achieved through serial cable or modem connection to the "TELECON" software.

1.3 Remote control

When the exciter is connected to an internal or external telemetry unit, it can be controlled from a PC with a suitable modem connection.

Fig.1.2: Example of Modem-to-PC connection

The "TELECON" software establishes connection with the station through a phone line and enables the following remote operations: alarm reset, transmitter power on/power off, power supply reduction, dummy load testing, etc., data evaluation to locate possible faults, identification of parts required for repair.

An alternative remote controlling option uses SMS messaging through a common GSM phone, in which case the equipment will respond as indicated in table 1.2.

Before querying the system using SMS messages, establish a connection using the "TELECON" software and set the provider service centre number and the telephone numbers authorised to send these commands to the devices.

The external telemetry support the following commands:

Command	Response	Description
INFO	Station Name: (string 16char max) Station ID: (to 000 from 999) FWD Power: (Forward Power in W) RFL Power: (Reflected Power in W) Unb: (Unbalanced Power in W) Temp: (Temperature in °C) TX: (On/Off)	Transmitter status information
TXON	Station Name: (string 16char max) Station ID: (to 000 from 999) Tx is ON	Transmitter power-on
TXOFF	Station Name: (string 16char max) Station ID: (to 000 from 999) Tx is OFF	Transmitter power-off
ALARM	Station Name: (string 16char max) Station ID: (to 000 from 999) Alarm: (Last 3 alarm list store in memory)	Alarm log
RESET	Station Name: (string 16char max) Station ID: (to 000 from 999) RESET stored Record	Clear Alarm Log
RESMOD	No response	Resets and re-initialises modem
STATUS	Resend alarm message	Resend the alarm status information
VERSION	Station Name: (string 16char max) Station ID: (to 000 from 999) *Release App, Release Bios, Release Pan, Table Code*	Software Version informations

Table 1.2

Note: Response time to SMS commands may vary with different GSM network providers; as a general rule, response time should not exceed 7-10 minutes maximum.

1.4 Arrangement of mains power supply

WARNING: Disconnect mains power supply before beginning these procedures.

The power supply unit (please see section 4.1 for a detailed description) has its own internal voltage selection block; **check the voltage selection block to ensure that is properly rated for the power mains, if the mains is different from that specified in the process of order, and change it as required to match mains voltage.**

Check that the voltage value available corresponds with the voltage value setting on the equipment (also listed in Test Table), verifying, and possibly modifying appropriately **with the equiment disconnected from the power mains**, the position of voltage selection block place internally (see fig. 4.1 - position [5]) after the cover of the machine had been unscrewing.

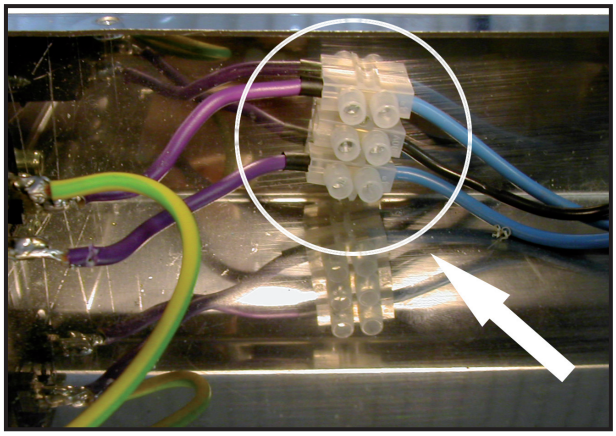


Fig.1.3: Position of voltage selection block inside the **RDMODGSM-TV**

Move the position of the following wires given in the table below, only in case is necessary to change the value of power supply.

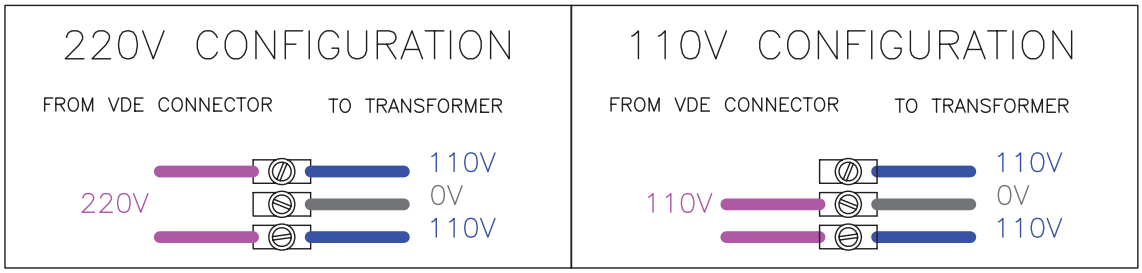


Fig.1.4: Example of electrical connections to voltage selection block for 220 or 110V

When all is done put the cover, putting all the screws, then connect the mains power connector (VDE) placed in the back of the equipment (see fig. 3.2 - position [1])..

2. SIM Card Specifications

When you subscribe to a provider service, the operator issues a SIM card that contains all subscription details, such as PIN, any optional services available and so on.

WARNING: The SIM card and its contacts are easily damaged if scratched or bent. Handle the SIM card with care when inserting or removing it.

The SIM card to be inserted into the modem must be registered for Data & Fax Service (see facsimile contract shown below).

SIM card configuration for DATA/FAX reception must meet the following specifications:
- Asynchronous; - Transparent; - 9600 Baud.

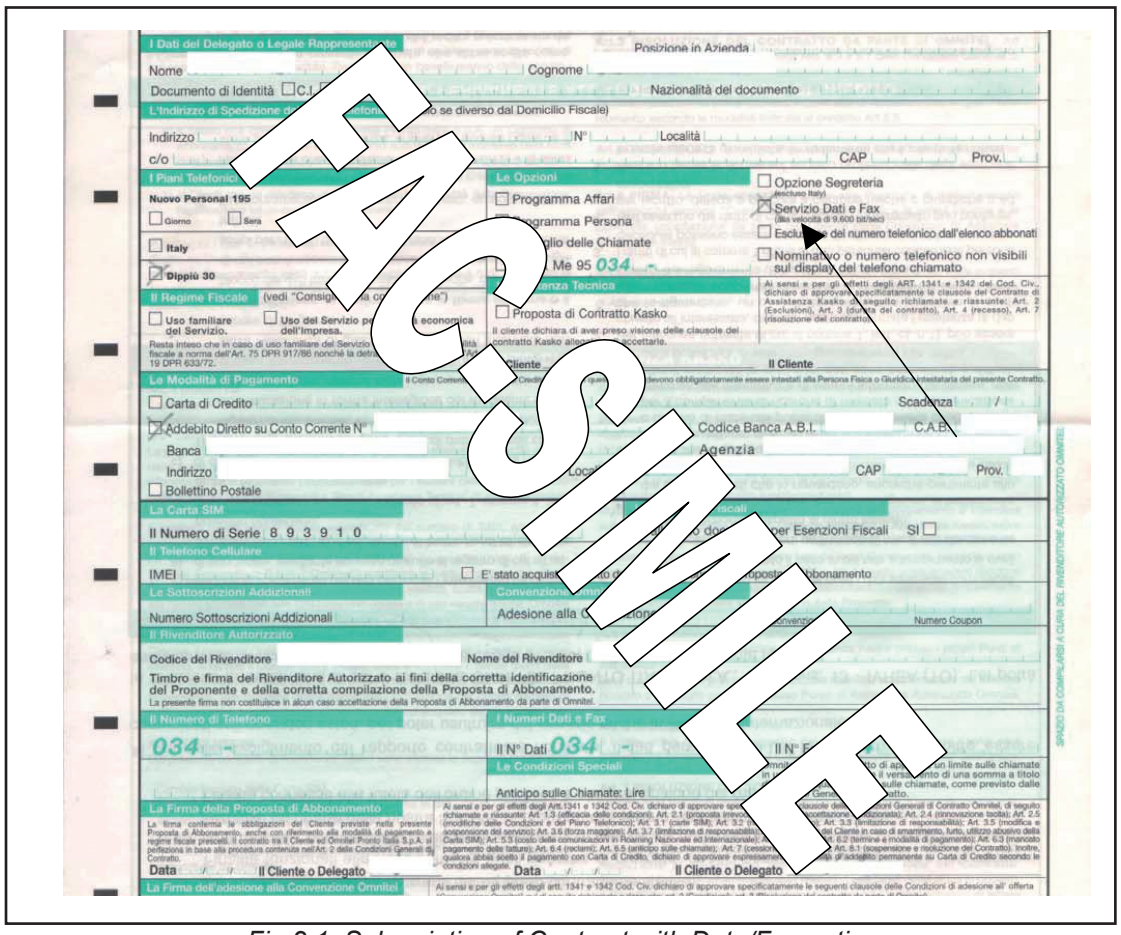


Fig.2.1: Subscription of Contract with Data/Fax option

WARNING: Some SIM cards are preset to request the PIN code as a security protection feature; this will cause a Modem malfunction. Be sure to disable this security protection using a common cell phone.

2.1 SIM card installation

Follow the instructions provided below closely to ensure correct configuration of exciter connection:

1) If needed, cut off mains power supply to the external telemetry accessory.
2) Remove all screws on the top cover and remove cover.

3) Press the eject button to extract the SIM card holder from the modem slot accommodated inside the **RDMODGSM-TV**.

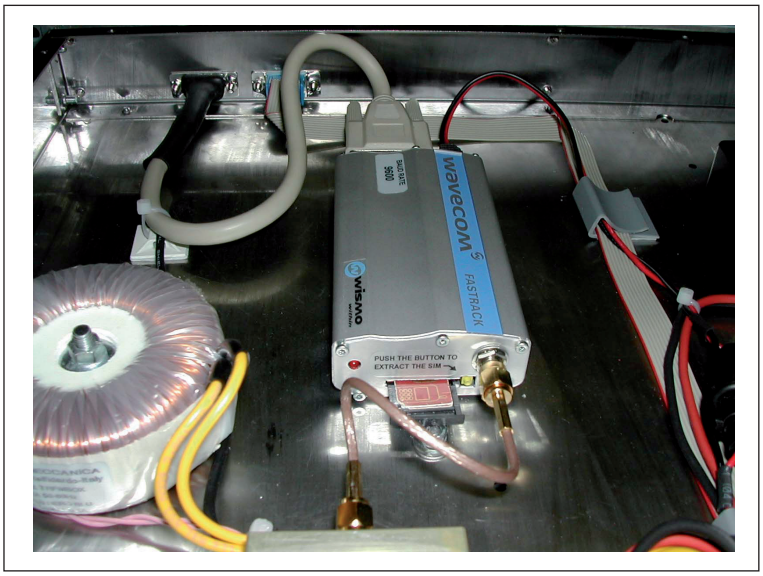


Fig.2.2: How to extract a SIM card from an Internal Modem

4) Insert the SIM card into the card holder. Make sure the cut-off corner of the card is in the correct position so the SIM card will lock into place inside the card holder and its golden contacts will be facing in the correct direction when the SIM card slides into place in the equipment.
5) Insert the SIM card into the modem accommodated inside the **RDMODGSM-TV**.
6) Refit the top cover and tighten all screws you had removed previously.
7) Connect a DB9 cable across the “RS232” connector on the front panel of the external telemetry accessory and the PC.
8) Connect the GSM modem antenna to the N-type connector “GSM ANT” on the rear panel of the **RDMODGSM-TV**. Use a broadband Yagi log-periodic directional antenna (700- 900 MHz).
9) Connect a DB15 cable across the “PTX-LCD REMOTE” connector on the rear panel of the external telemetry accessory and the “REMOTE” connector on the rear panel of the exciter.
10) Connect mains power supply to the VDE connector on the rear panel of the external telemetry accessory to power on the telemetry accessory.
11) Programme the internal EEPROM using the “TELECON” software.

2.2 Remote alarm reporting configuration

Firstly, you will have to set certain parameters in the external telemetry accessory using the “TELECON” software. Connect the PC serial port COM to the RS232 connector on the front panel of the **RDMODGSM-TV** using a standard Male DB9 - Female DB9 serial cable.

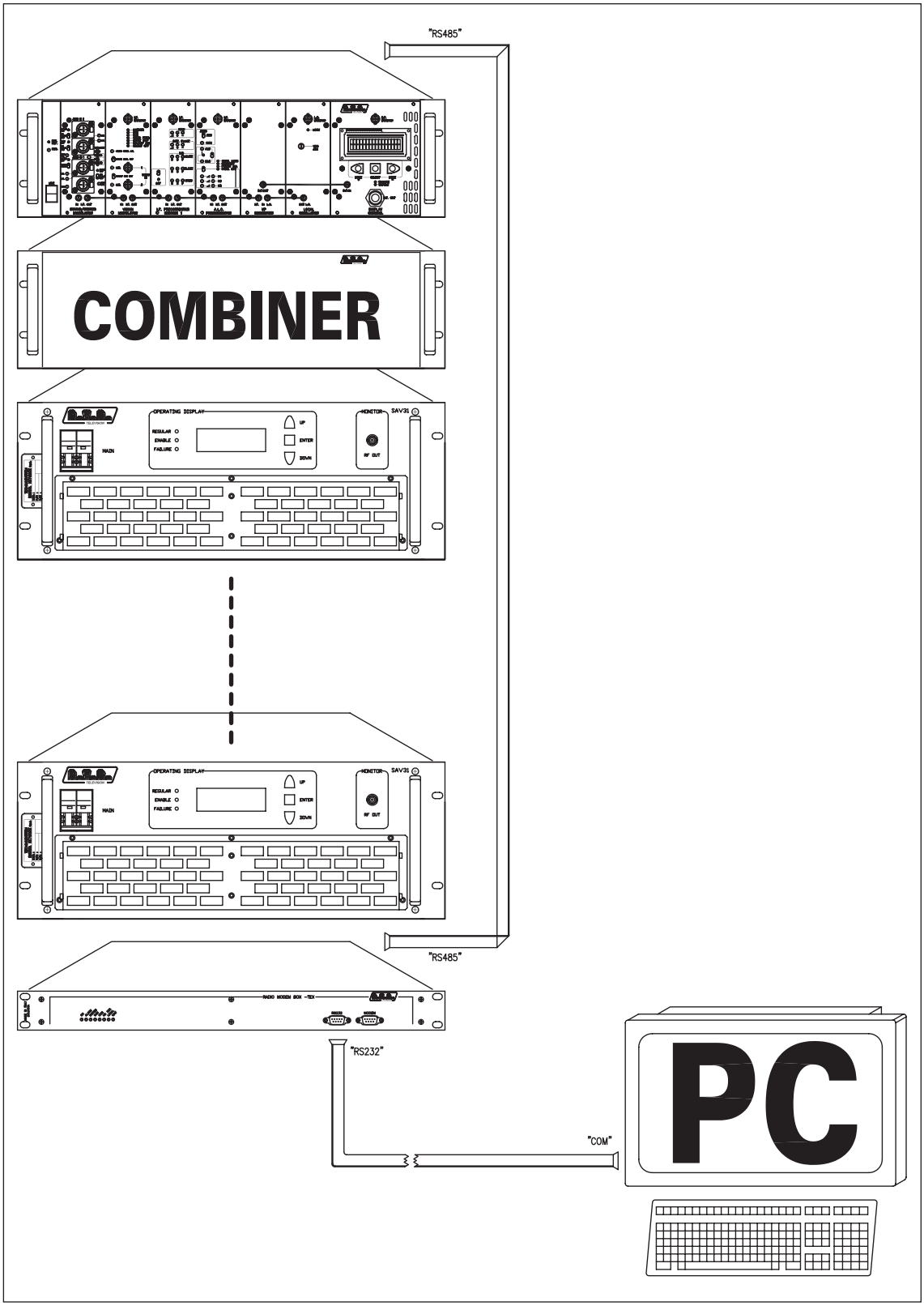


Fig.2.3: Connection between STU/STV and multi SAU/SAV with **RDMODGSM-TV** *and PC*

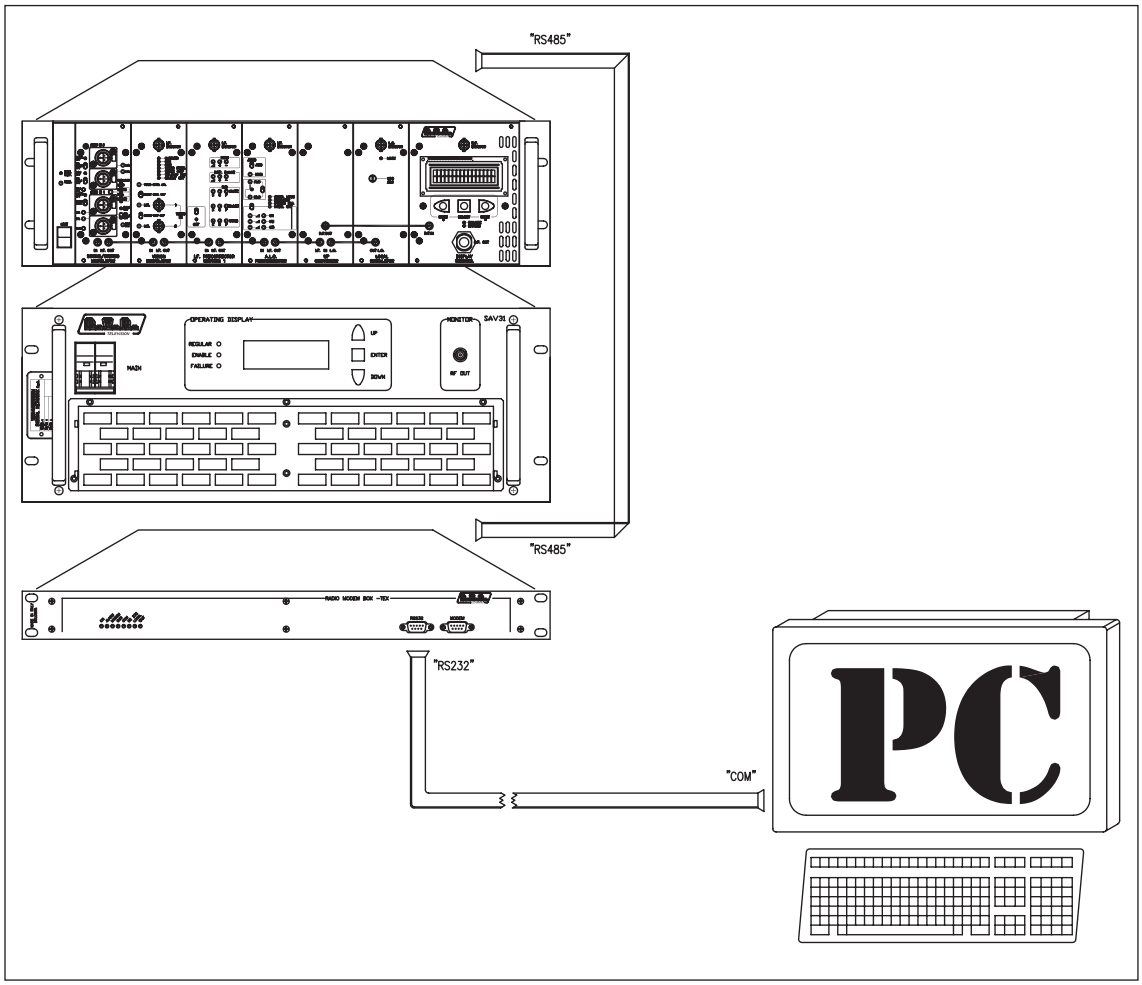
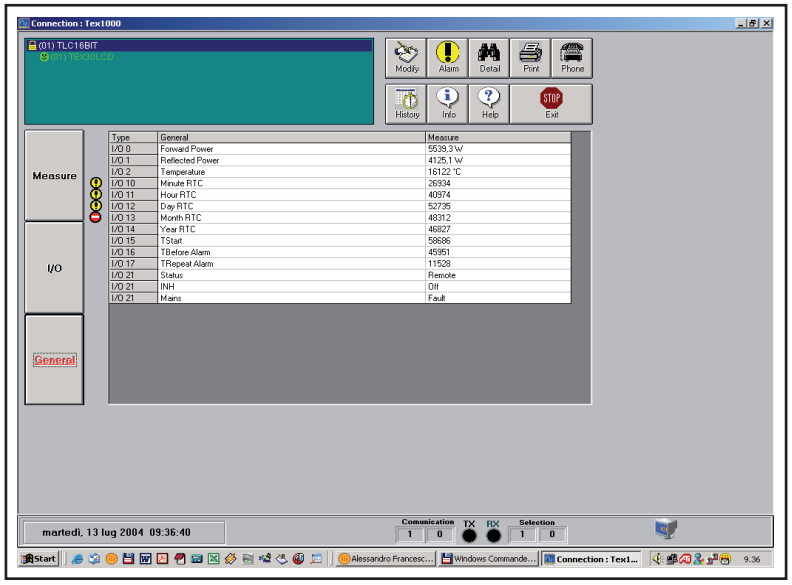


Fig.2.4: Connection between STU/STV and single SAU/SAV with **RDMODGSM-TV** *and PC*

When using the “TELECON” software for the first time, select the station and then enter:

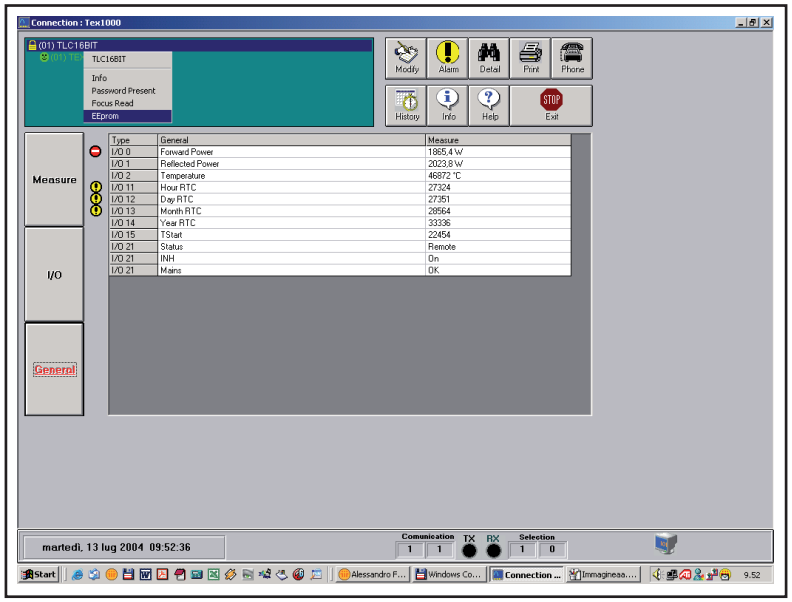
- COM port used,
- Baud rate (set to 9600),
- type of connection (set to direct, via cable).

When you have entered the correct data, click the “Start” button to confirm and the “TELECON” main screen appears, as shown in the figure:



Use this screen to change Start time. To edit this parameter, click the “TStart” box with the left mouse button (default setting is 300sec., the equivalent of 5 min.); this opens a window where you can change the setting. Press Enter to confirm.

Double click the green label in the top left corner of the TELECON screen and select “Eeprom” (as shown in the figure below).



In the open menu, press this key to view station parameters.

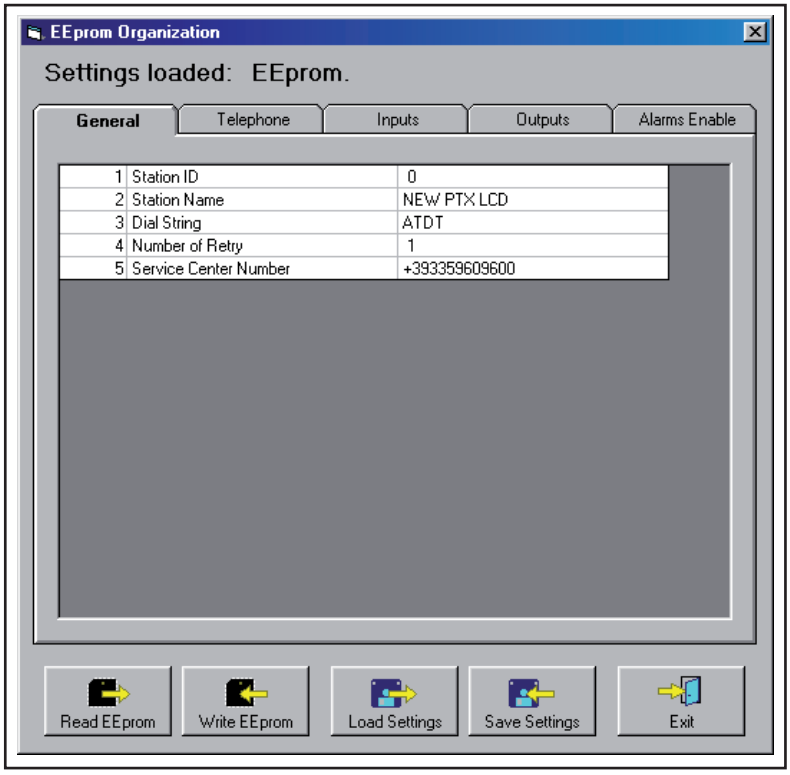
- Select the “General” data category and set the 5 parameters:
- **STATION ID:** Station identifier;
- **STATION NAME:** (max 18 characters);
- **DIAL STRING:** required setting for a GSM modem is ATDT;
- **NUMBER OF RETRY:** number of alarm transmission repetitions;
- **SERVICE CENTER NUMBER:** number of GSM provider service centre for SMS transmission and reception; place country code before number.

Example with Italian service providers:

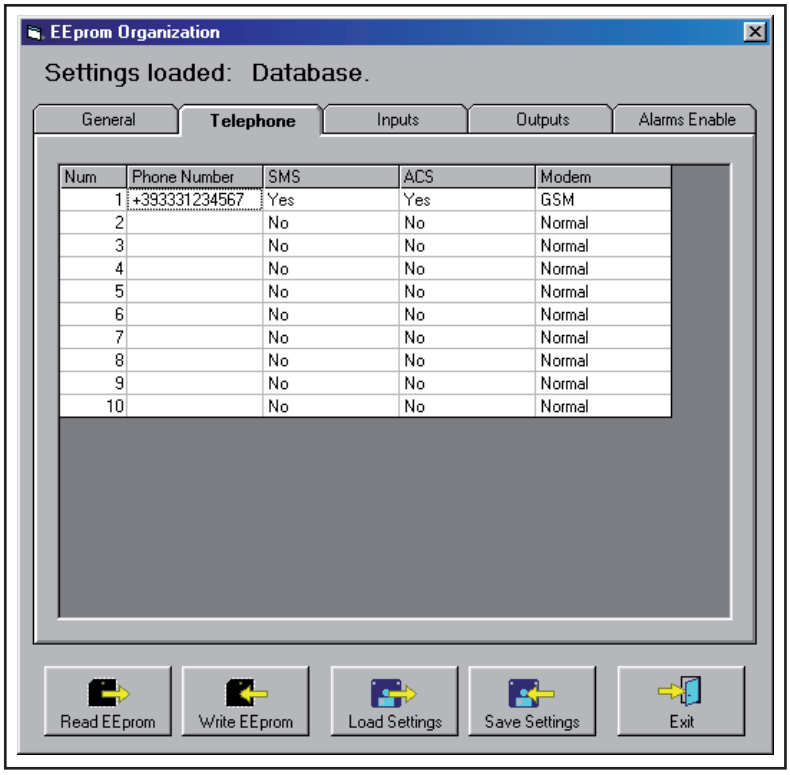
TIM: +393359609600

VODAFONE: +393492000200

WIND: +393205858500



Now select the “Telephone” data category and set the following:



- PHONE NUMBER: GSM phone numbers recognised by the station to which you want the alarms sent;
- SMS: select “YES” to enable transmission of SMS commands to system;
- ACS: select “YES” to enable SMS reception.

Note: For correct transmission, place country code (+XX) before set numbers (Use +39 for Italy).

When all parameters are set, press this key and external Telemetry accessory will store the information.

When finished, click “Exit” to exit the remote station programming window.

Back into “TELECON” standard interface, click the “General” measurement selection button to set thresholds and operation times for the various alarms according to the principles outlined in Section “Alarm Management”.

Note: When setting alarm thresholds, allow a margin of some percent points with respect to normal operation parameters.

3. RDMODGSM-TV External Description

This section describes the components found on the front and rear panel of the **RDMODGSM-TV**.

3.1 Top view

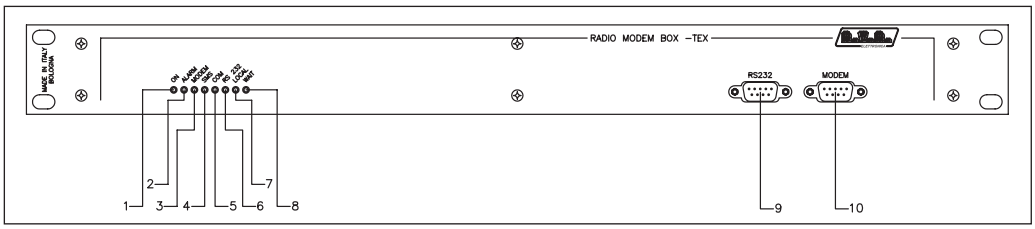


Figure 3.1

[1]	ON	Green LED, turns on when the equipment is connected to mains power supply.
[2]	ALARM	Red LED, turns on when an alarm detected by the telemetry system is present.
[3]	MODEM	Green LED, turns on when modem is connected.
[4]	SMS	Yellow LED, indicates that SMS messaging is active.
[5]	COM	Yellow LED, indicates the remote communication, or rather telephone connection through TELECON software
[6]	RS232	Yellow LED, indicates that communication via RS232 serial port is in progress.
[7]	LOCAL	N.C. (Provided for future expansion).
[8]	WAIT	Yellow LED, when on, indicates that Start time is active. No alarm messages will be sent until this LED turns off.
[9]	RS232	DB9 connector connected to telemetry unit (SAU/SAV and STU/STV series <->PC).
[10]	MODEM	DB9 connector connected to GSM Modem (PC <-> Radio Modem Box -TV).

3.2 Bottom view

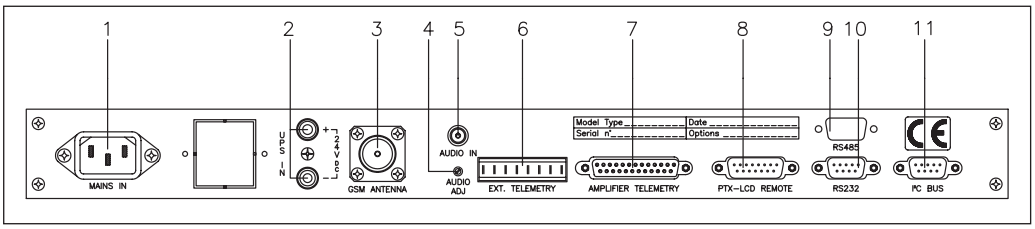


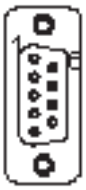
Figure 3.2

[1] MAINS IN VDE mains power supply connector
[2] 24 VDC Jacks (red - black) for 24V DC output.
[3] GSM ANTENNA N-type connector for antenna connection.
[4] AUDIO ADJ. Trimmer for audio input level adjustment.
[5] AUDIO IN Audio input female jack connector.
[6] EXT. TELEMETRY
N.C. (Provided for future expansion).
[7] AMPLIFIER TELEMETRY
N.C. (Provided for future expansion).
[8] PTX-LCD REMOTE
DB15 connector for telemetry connection to SAU/SAV and STU/STV series.
[9] RS485 DB9 connector for RS485 communication.
[10] RS232 DB9 connector for communication interface to external devices.
[11] I^2C DB9 connector for I2C communication.

3.3 Connector pinouts

3.3.1 RS485

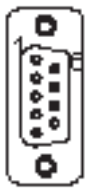
Type: DB9 female



1 N.C. (internally not connected)
2 B
3 A
4 N.C. (internally not connected)
5 GND
6 N.C. (internally not connected)
7 N.C. (internally not connected)
8 N.C. (internally not connected)
9 N.C. (internally not connected)

3.3.2 RS232

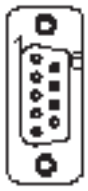
Type: Male DB9



1	NC
2	TX_D
3	RX_D
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

3.3.3 I²C

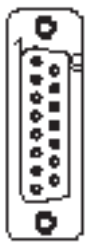
Type: Male DB9



1	NC
2	SDA (Serial DAta)
3	SCL (Serial CLock)
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC

3.3.4 PTX-LCD Remote

Type: Male DB15



1	Interlock
2	Ext AGC FWD
3	GND
4	SDA IIC
5	VPA Tlm
6	FWD tlm
7	Power Good
8	GND
9	GND
10	Ext AGC RFL
11	SCL IIC
12	IPA Tlm
13	RFL Tlm
14	On cmd
15	OFF cmd

4. RDMODGSM-TV Module Identification

The **RDMODGSM-TV** is made up of several modules connected through connectors to facilitate maintenance and replacement (if needed).

4.1 Top view

Figure 4.1 shows a top view of the equipment and component locations.

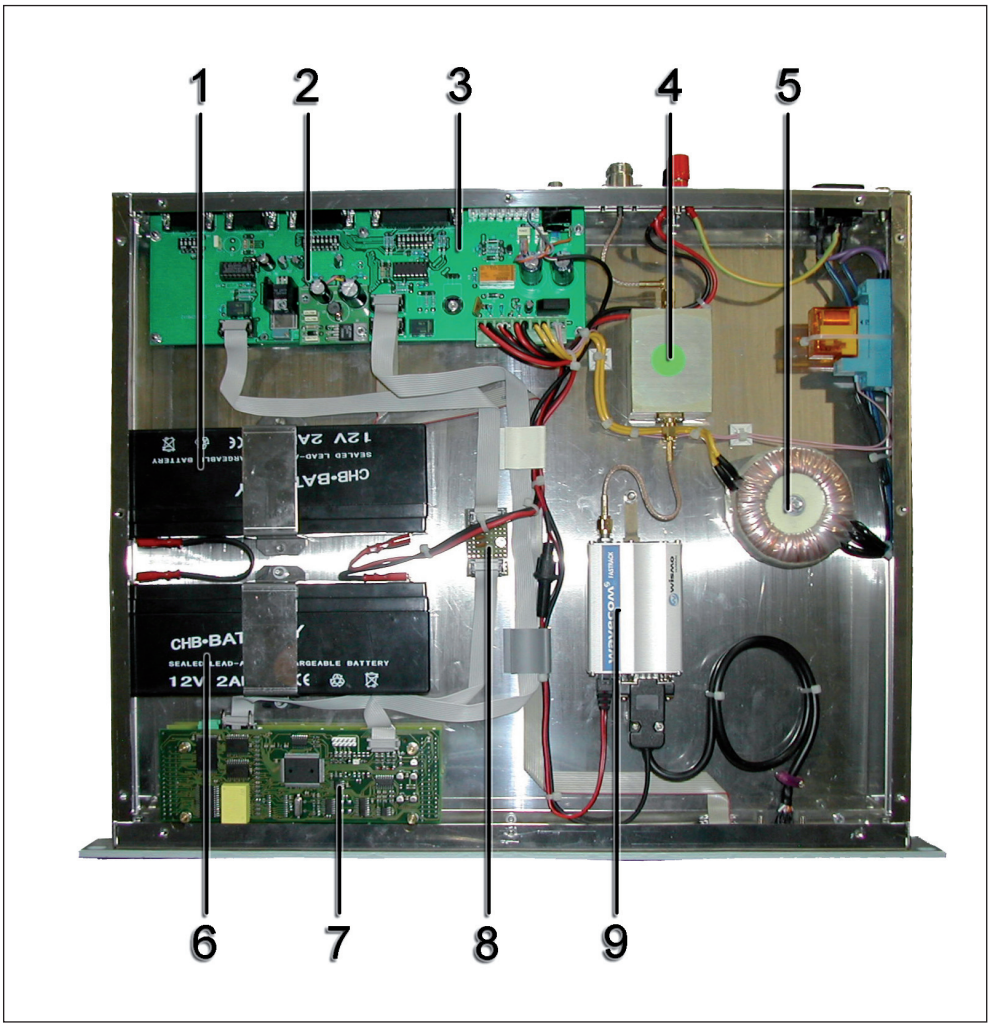


Figure 4.1

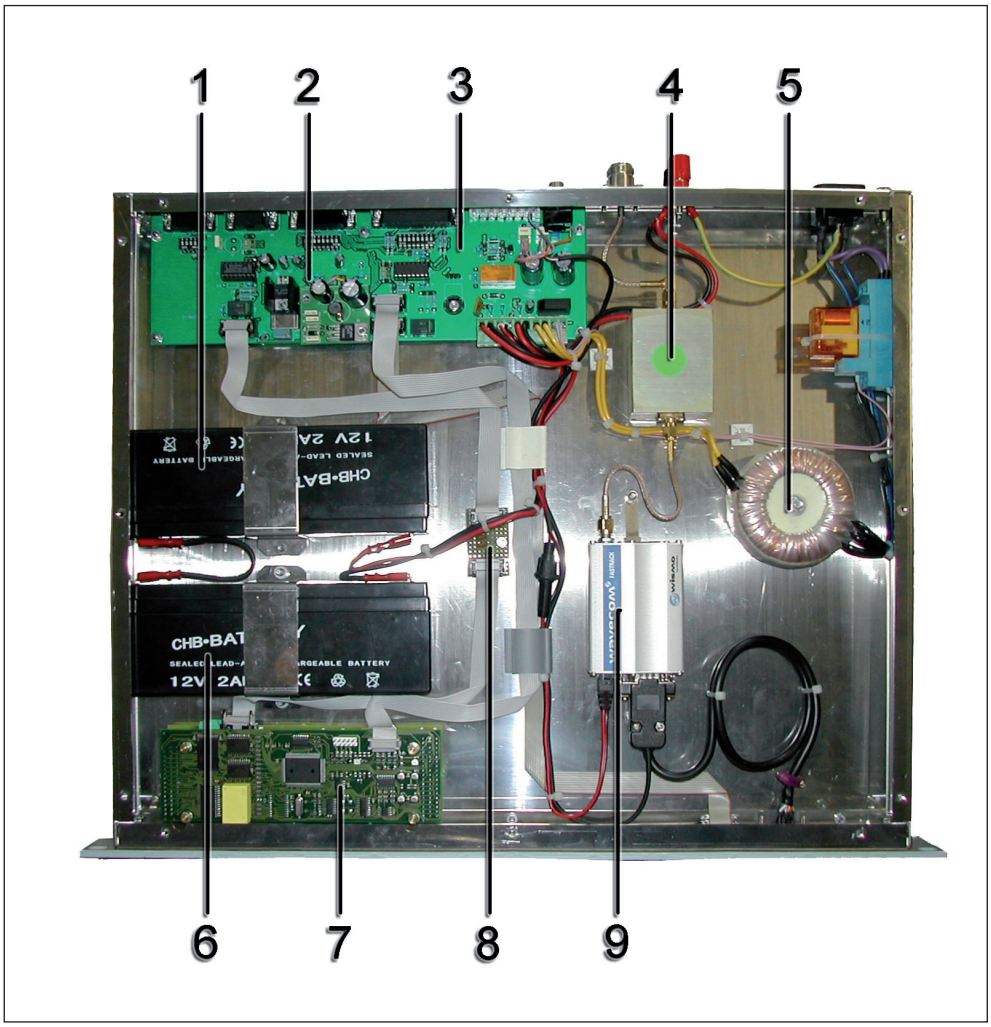
[1] 12V 2.1AH lead buffer battery (**BATTPG12V2A2**).
[2] Voltage selection block 220/110V.
[3] Main and Power Supply Add-On Board (**SLINTGSMBOX4**).
[4] **/FILGSM-RDMODGSM** opt., GSM band filter board (**FLMGSM900MHZ**).
[5] Transformer (**TRFRMBOX**).
[6] 12V 2.1AH lead buffer battery (**BATTPG12V2A2**).
[7] CPU16Bit Board (**SLCPU16V2TEX**).
[8] CPU16Bit Interface Board (**SLCPU16V9TEX**).
[9] LED Board for CPU16bit (**SLCPU16LED01**).
[10] Wavecom GSM Modem (**MODGSMWM02B**).

5. RDMODGSM-TV.USA Module Identification

The **RDMODGSM-TV** is made up of several modules connected through connectors to facilitate maintenance and replacement (if needed).

5.1 Top view

Figure 5.1 shows a top view of the equipment and component locations.



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[1] 12V 2.1AH lead buffer battery (**BATTPG12V2A2**).
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[7] CPU16Bit Board (**SLCPU16V2TEX**).
[8] CPU16Bit Interface Board (**SLCPU16V9TEX**).
[9] LED Board for CPU16bit (**SLCPU16LED01**).
[10] Wavecom GSM Modem (**MODGSMWM02BUSA**).

6. Spare Parts

6.1 RDMODGSM-TV

Maintenance Subset

Main and Power Supply Add-On Board	SLINTGSMBOX4
CPU block	KCPU16VRMBOX
GSM band filter board option	/FILGSM-RDMODGSM

Parts of use

Transformer	TRFRMBOX
12V 2,1AH lead buffer battery	BATTPG12V2A2
GSM Wavecom Modem	MODGSMWM02B

6.3 RDMODGSM-TV.USA

Maintenance Subset

Main and Power Supply Add-On Board	SLINTGSMBOX4
CPU block	KCPU16VRMBOX
GSM band filter board option	/FILGSM-RDMODGSM

Parts of use

Transformer	TRFRMBOX
12V 2,1AH lead buffer battery	BATTPG12V2A2
GSM Wavecom Modem	MODGSMWM02BUSA